



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/768,174   | 02/02/2004  | Harumi Kaga          |                     | 3641             |
| 7590   | 06/05/2008  |                      | EXAMINER            |                  |
| George A. Loud, Esquire<br>BACON & THOMAS<br>Fourth Floor<br>625 Slaters Lane<br>Alexandria, VA 22314-1176 |             |                      | BLAND, LAYLA D      |                  |
|  |             | ART UNIT             | PAPER NUMBER        | 1623             |
|  |             | MAIL DATE            | DELIVERY MODE       | 06/05/2008 PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/768,174             | KAGA ET AL.         |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | LAYLA BLAND            | 1623                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 15 February 2008.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-35 is/are pending in the application.
  - 4a) Of the above claim(s) 9-25 is/are withdrawn from consideration.
- 5) Claim(s) 2, 26, 27, 30-35 is/are allowed.
- 6) Claim(s) 1,3-8,28 and 29 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ .  | 6) <input type="checkbox"/> Other: _____ .                        |

**DETAILED ACTION**

This office action is a response to Applicant's amendment submitted February 15, 2008, wherein claims 1 and 2 are amended. Claims 1-35 are pending. Claims 9-25 are withdrawn from consideration. Claims 1-8 and 26-35 are examined on the merits herein.

In view of Applicant's arguments submitted February 15, 2008, the rejection of claims 34-35 under 35 USC 112, second paragraph, for being indefinite regarding structures with unspecified ends, is withdrawn.

In view of Applicant's arguments submitted February 15, 2008, the rejection of claims 1-4, 7-8, 26-27 and 30-32 under 35 USC 102(b) as being anticipated by Toshifumi et al. is withdrawn. Toshifumi et al. does not teach a copolymer which could be made from either formula (1) or formula (2).

In view of Applicant's amendment submitted February 15, 2008, the rejection of claims 1, 3-4 and 7-8 under 35 USC 102(b) as being anticipated by Sunder et al. is withdrawn. Sunder et al. discloses hyperbranched polymers made from a compound of formula 2 wherein m is 0. The amended claims require that m is an integer from 1 to 20. Thus, the claims are no longer anticipated by Sunder et al.

Upon further consideration, the rejection of claims 5-6, 28-29, and 33-35 under 35 USC 103(a) as being unpatentable over Toshifumi et al. in view of Satoh et al. and further in view of Kamada et al. is withdrawn.

The following are new rejections necessitated by Applicant's amendment submitted February 15, 2008, wherein the scope of claim 1 was changed such that m can no longer be zero, which resulted in withdrawal of the rejection over Sunder et al.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6, 28, and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 is drawn to the polymer of claim 1, comprising at least one anhydrosugar selected from a group consisting of a number of 1,2-anhydro sugars. In each of these sugars, m is zero. Claim 1, as amended, requires that m is an integer between 1 and 20. There is insufficient antecedent basis for this limitation in the claim.

Claims 28 and 29 are drawn to the polymer of claim 2, comprising at least one anhydrosugar which can be 1,2-anhydro sugars. In this case, m is zero. Claim 2, as amended, requires that m is an integer between 1 and 20. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

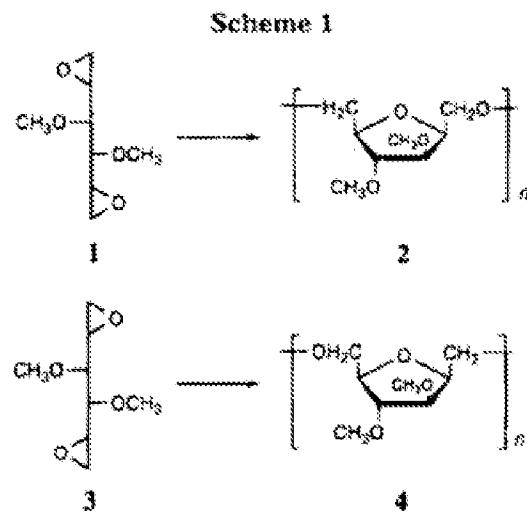
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-5, 7, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Satoh et al. (Macromolecules, 1996, 29(21), 6681-6684, of record).

Satoh et al. teach that the copolymerization of compound 1 with compound 3 [page 6882, Scheme 1], shown below, resulted in a random copolymer consisting of (1→6), (6→1), (1→1), and (6→6)-linked 2,5-anhydro-3,4-di-O-methyl-D-glucitol [abstract]. The molecular weights of the polymers ranged from about 2500 to about 6000 [page 6682, Table 1].



Satoh et al. do not disclose the degree of branching of the copolymers. They are disclosed as random copolymers, having a variety of linkages, and are prepared using the same reagent as are the claimed polymers. Therefore, it is considered likely that the products have some degree of branching and thus meet the limitations of the claims. It is noted that no explicit definition for “hyperbranched” is given in the

specification. Since the Office does not have the facilities for preparing the claimed materials and comparing them with prior art inventions, the burden is on Applicant to show a novel or unobvious difference between the claimed product and the product of the prior art. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980).

### ***Allowable Subject Matter***

Claims 2, 26, 27, and 30-35 are allowable over the prior art. The prior art does not teach or fairly suggest copolymers prepared from an anhydrosugar of formulae 3-7 and an anhydrosugar of formulae 1-2. Furthermore, although the products of Satoh et al. are considered very likely to have some branching and thus meet the limitations of claims 1, 3-5, 7, and 8, it is not considered likely that the product of Satoh et al. is the product shown in claim 34.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAYLA BLAND whose telephone number is (571)272-9572. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anna Jiang can be reached on (571) 272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Layla Bland/  
Examiner, Art Unit 1623

/Shaojia Anna Jiang, Ph.D./  
Supervisory Patent Examiner, Art Unit 1623